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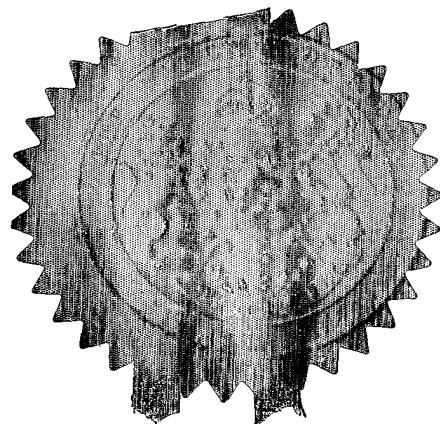
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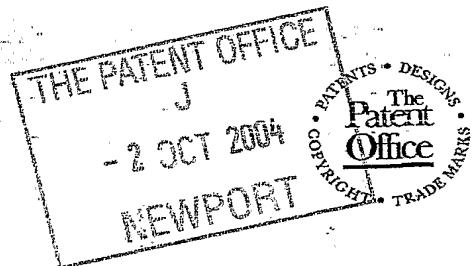
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6417846002.

4. Title of the invention

IMPROVED TRUCK SHEETING COVER WITH SIDE FLAPS.

5. Name of your agent (if you have one)

(s1/77 - 17.1.05)

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Description

4

Claim(s)

1

Abstract

2

Drawing(s)

10. If you are also filing any of the following, state how many against each item.

Priority documents

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Statement of inventorship and right to grant of a patent (Patents Form 7/77)

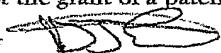
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1ST OCTOBER

Date 2004

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IMPROVED TRUCK SHEETING COVER WITH SIDE FLAPS

This invention relates to the design of an improved truck sheeting cover with "single pull - automatically retracting side flaps" which when incorporated into a new roller cover sheeting system for open back trucks or supplied as a replacement cover sheet for already existing roller cover sheeting system for open back trucks, will enable the system to now fully and securely enclose and protect the load in a unique simple action. Once the main cover is extended over the open back of the truck, each side flap can be manually pulled over and down the sides of a truck and secured using just ONE unique central pulling point, all from ground level and upon released the side flap will instantly automatically retract back onto the main cover in a completely flat arrangement allowing the cover sheet to be smoothly rolled back onto its roller.

Road haulage and truck operators use various types and designs of tarp, tarpaulin or other material sheeting systems to cover and protect loads carried in the back of high sided open top trucks and the need for simple and efficient side flaps to completely enclose the loads to protect it from the elements and to control the loss of material etc. due to wind etc. is increasingly being required. Most, if not all of the available roller cover sheeting systems only cover the actual truck load carrying area allowing the elements to enter the load inside the truck along the sides of the cover and material to exit along the sides of the cover and onto the roads etc. The few covers that do incorporate any form of side flap mainly require the operator to physically deploy the side flaps by reaching or climbing up and literally pull them over and down the entire length of the truck and manually secure them down all along the trucks side with many ties, which apart from being an effort especially in wet, cold or freezing conditions, could be extremely hazardous. Then when the load needs uncovering this entire procedure is required in reverse. The operator has to climb up and manually untie all the ties along the length of the truck and physically fold the flap back unto the main cover sheet. This new design will replace all of this and as far a health & Safety and Environmental issues go will be a boon.

This invention is primarily designed for use with either electrical or hydraulic or air pressure operated "side arm" forward mounted roller sheeting systems and will hereinafter be discussed in conjunction with that intended use. Nevertheless it will be appreciated that this side flap deployment system could be used with other types of sheeting systems including manually operated "side arm" roller sheeting systems, pull over roller mounted systems, side arm mounted roller systems or in fact any other type of roller or other system that can utilise the features of this invention.

In one preferred example, and using a conventional side-arm, "front to back" roller cover system where the main cover sheet is carried on the forward part of the truck, rolled up on a mounted roller. When extended, the main cover sheet, comprises of a rectangular sheet extending the length and width of the open top of the trucks rear container and a triangular shaped side flap (similar to the flap on an envelope) extending the full length of each of the main covers two outer edges i.e. along the length of the main cover sheet, parallel and adjacent to the trucks outer top edges.

Running the length of this main cover sheet and through an eye in the centre points (2) of the side flaps are longitudinal elastic or other types of expanding and retracting strips (Fig.1,2,3)(3) (e.g. bungee cords) which are secured at one end of the strip to the front end of the main cover sheet or in the region of the sheet's front roller (Fig. 1&2) (4) and secured at their other end to the back of the main cover sheet or in the region of the sheeting systems rear cross bar (5)(Fig. 1&2).

A secured cord, rope or wire or some other non extendable tie (Fig 6a)(8) runs between the centre fixing point (2) on the side flap and the very rear outer corner of the cover, adjacent to the outer bend or corner of the rear cross bar, on the same side as the flap and is secured at each end. Its course runs roughly parallel with the rear returning edge of the side flap in its un-deployed mode. This secured cord should be of a roughly corresponding length to the distance it covers i.e. not to tight and not to loose.

A pull cord, rope, wire, chain or such like (Fig. 6, 6a & 6b)(11) is attached to this secured cord by means of a pulley roller, ring or loop or other fitment at its top end (9) with the secured cord (8) running freely through it. This pull cord is the method of extending and securing the side flap and hangs loosely downward.

As a starting point for the description of operation the main cover has already been deployed from its roller over the truck box as seen in Fig. 6a and the pull cord (11) is freely hanging from its loop, down the rear side of the truck. The operator applies downward /outward pressure on this cord and walks towards the front of the truck flap whilst at the same time still applying pressure to the pull cord (11). This pressure will automatically make the open eye or loop etc. travel forward along the fixed cord (8) to stop at its forward fixed point adjacent to the centre fixing point (2) on the side flap and in doing so will completely pull and extend the side flap over and down the side of the truck. The elastic strips (3) are now travelling across and over the side of the truck at a spaced interval (Fig.3) and on down to the centre fixing point (2). In this position they are pulling the side flap down tight onto the truck top edge and side creating additional sealing capability to the already tight and secure side flap. Whilst keeping downward pressure on the pull cord (11) it can now be tightly fixed to an adjacent fixing point and when this operation is completed on the opposite side of the truck the cover including side flaps is securely fitted.

When the side flap fixing is released the whole works in reverse and the side flap springs back due to its taught elastic. This taught elastic (3) pulls on, and retracts the side flap back over the truck sides and returns it to its original folded-in flat position laying flat on the main cover. The operator still holding the pull cord (11) now walks to the rear end of the truck whilst applying pressure on the pull cord which due to the pulley roller, open eye or loop combined with the backward and outward angle of fixed cord (Fig. 6a)(8) will travel back to its rear hanging position making the main cover sheet ready to return smoothly back onto its roller in a neat arrangement. Once rolled back, the pull cord (11) will be as shown in Fig.6 and can be safely and securely tied off ready for use again.

It is the "V" triangular shape of the side flaps and the central fixing point that make for successful deployment and retraction. When deploying the side flap, exerting outward and downward pressure on the fixing point (2) and securing it down, creates pressure through the side flaps fabric that radiates both upwards and outwards in a sideways direction along the entire length of the side flap and this overall pressure is what completely pulls over and holds down the side flap in position. In reverse, both upward and backward pressure is created from the now taught elastic strips (3) creating the same effect and pulling the flap back into its flat position laying on the main cover sheet.

FIG. 1 shows an extended cover with the side flaps folded back onto the main cover and the elastic strips in their initial positions. Roller (22) is positioned to the left.

FIG. 2 shows an extended cover with the side flaps when deployed and the elastic strips in their fully stretched positions.

FIG.3 shows a side view of the truck back or container with the cover extended and the side flaps coming down the side of the container with the elastic strips in their fully stretched positions. Roller (22) is shown to the top left position.

FIG. 4: shows an alternative example of an extended cover with side flaps deployed showing the multiple elastic strip arrangement with additional elastic strips (27) in their fully stretched positions

FIG.5 Shows weld or seam line with side flap in its retracted "folded back on itself" position laying on the main cover (24) from a side viewed perspective.

Fig. 6 Shows the side view of truck with the cover sheet roller (22), its cover sheet in its rolled -up mode and the side arm in its forward parked position. Pull cord (11) is also at its parked position where it can be "tied off".

FIG 6a. Shows both the side and top view of the truck with the cover sheet fully extended with the side arm in its rear parked position prior to the deployment of the side flaps or after the side flaps retraction. The non extendable fixed cord or wire (8) is seen running from the side flap central fixing point (2) through a loop (9) at the end of the pull cord and on to a fixed point (10) at or on the outer rear area of the cover or cross bar (12). Pull cord (11) is seen hanging down. (Elastic strips are omitted from this illustration purposes only so as to not confuse the drawing)

Fig.6b Again shows the trucks side view , minus elastic strips, this time with the side arm and main cover sheet extended and the side flap deployed in its fully extended position. The pull cord (11) has now travelled down the fixed cord (8) by way of its loop (9) and is in its fully pulled down position.

Fig.7 Shows an exploded view of the rear corner of the truck and its features as shown smaller in Fig. 6a.

The sheeting part of this invention as seen from above is shown in fig. 1 & Fig 2 comprises of basically a rectangular sheet with triangular shaped side portions or triangular flaps that are angled outwards towards their centres terminating in a centre fixing point with open eyes (2) with an arrangement of one or more elastic strip for each side flap running through these open eyes and on to fixed positions at opposing ends of the main cover sheet.

In a preferred method it has been found that the side flaps return to their rolled-up inward "laying flat" position better on the cover and the cover retracts onto its roller more neatly and successfully if the actual side flap folds in the cover sheet have, during their manufacture, been manufactured with for example, a narrow weld or seam sewn in it along its entire length of folded edge whilst in a folded back position making the flap naturally fold want to fold back to lay on the main cover. (fig.5) (25) although testing has shown that this "Backward seam" is not essential for the correct return of the side flap onto the main cover / sheet.

The position of the elastic fixing / securing points at each end of the cover are found to be most successful when positioned inward and towards the opposing side of the cover, away from the flap in question, possibly making a crossing "X" arrangement in the elastic when viewed both before and after the side flaps are extended (see Figs. 1 & 2) but other fixing points may also be appropriate and be used. The triangular shape design of the side flap is critical for the smooth operation and although it is found to operate best when formed in an equal "V" with the fixing point (2) shown in Fig. 1,2,3 & 4, in the centre of the flap, an offset "V" with the fixing point (2) offset of centre can also be used.

The cover (seen best in Fig.2 (24) could be made of any material that is satisfactory for its specific use or already being used in the truck sheeting cover industry, for example but not exclusively, a weather or water-proof synthetic textile material or fabric such as polyamide or P.V.C. vinyl , or canvas or a porous web fabric or material with holes in to allow air to pass, but not solid material or material particles.

There is a guideline calculation for the best configuration and shape of the flap and it is approx. one foot down of central flap to every five foot length of the cover itself. This guideline measurement was found during initial testing to be suitable and exert the best pressure along the length of the flap, but other lengths, configurations and shapes may also be satisfactory.

The pull cord (11) could be replaced by a rigid or flexible pole with the same pulley roller, loop or ring etc (9), at its top point if found to work better in use.

As an alternative a multiple arrangement of triangular shaped side flaps following one another and slightly overlapping each other may be utilised along the length of a longer truck to enable adequate side flap coverage but all will have the same basic principals and features as for a single side flap, including the elastic strips, each with a single pull cord attached by a ring or loop to individual fixed cords (8) running from the centre fixing point (2) on each flap all running and fixed to a common point at the very rear outer corner of the cover, adjacent to the outer bend or corner of the rear cross bar, similar to the fixing point of a single side flap

An alternative cover with an alternative additional multiple elastic strip arrangement (27) can be seen in fig.4. This alternative may be used when the truck back is long and therefore requires a longer side flap. The additional elastics can be left quite slack but tight enough to tighten up when pulled over the edge of the truck back.

Fig.4. shows an arrangement of these additional elastic strips (27) at lesser angles than the original strips (3). These strips (27) can be more loosely fitted than the main strips (3) and may be required when the side flap is of this greater length. Their lesser angle means they travel over the truck side at spaced intervals / various additional points when the flap is deployed holding the longer side flap down onto the trucks top edge more tightly and securely along its length.

The elastic strips (3) may need to be adjusted after fitting to obtain the correct amount of pressure exerted on the side flap to achieve the optimum action of the side flap. This also applies to strips (27) if they are fitted although when in production and after an initial trial period this systems adjustment / measurement will be fully known and the elastic may be correctly pre-set during manufacture

In an alternative method this side flap invention can also be manually operated entirely from ground level by means of physically pulling down a non extendable hang down tie or cord tied to the side flaps central fixing point (2) and discarding both the fixed cord (8) and pull cord (11). (There may need to be some sort of fixed guide or such like aligned with the edge of the roller, for example a short vertical bar, to facilitate smooth retrieval of and guide the cord (14) back onto the roller when the main cover sheet is retracted) although this may not be necessary and it may just roll up satisfactorily.

An alternative method of side flap retraction is by use of a pole hook or even by reaching up to the fixing point (2) and physically pulling it down by hand (if the truck side is low enough) whereupon the lower edge of the side flap can be held down and secured by means of a tie, a hook or by any other means suitable.

As a further alternative the cord (8) could just run directly from the central fixing point (2) to a fixing point on or at the outer rear area of the cover or cross bar (10) and exclude the pull cord (11). Prior to the deployment of the side flap this cord would be laying towards the outer edge of the main cover at the rear end of the side flap and therefore could be easily accessed especially at the rear of the truck, by a pole hook or hand if low enough for the pulling down the side flap.

Any reference to cover systems rear cross bar (seen in Fig. 6a)(12) (which is attached at each of its ends to the top end of its corresponding side arm (13)) in this text relates to it being at the rear of the truck when extended but it could, if the system was used the reverse way round become the "front" cross bar or even the side "cross bar".

It is the principal aim of this invention to be either supplied as an improved replacement cover sheet for any roller cover sheeting system especially "front to back", side arm, roller systems, that are currently used or incorporated into the design of a completely new roller-cover sheeting system or any other new design of system that may be produced.



Fig 3

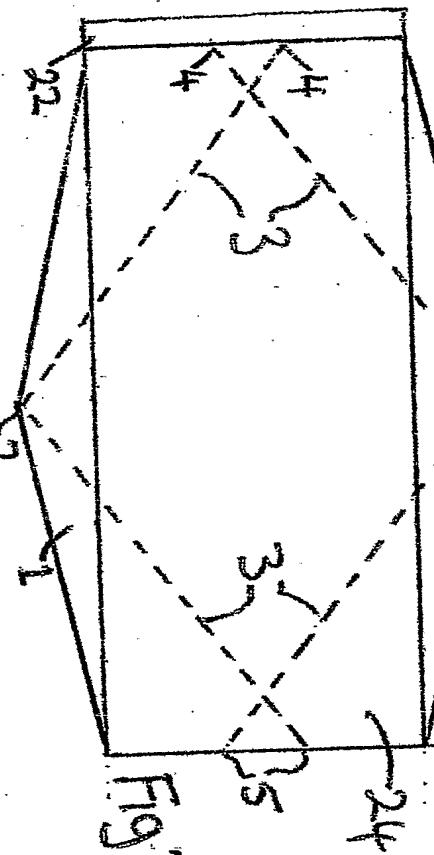


Fig 2

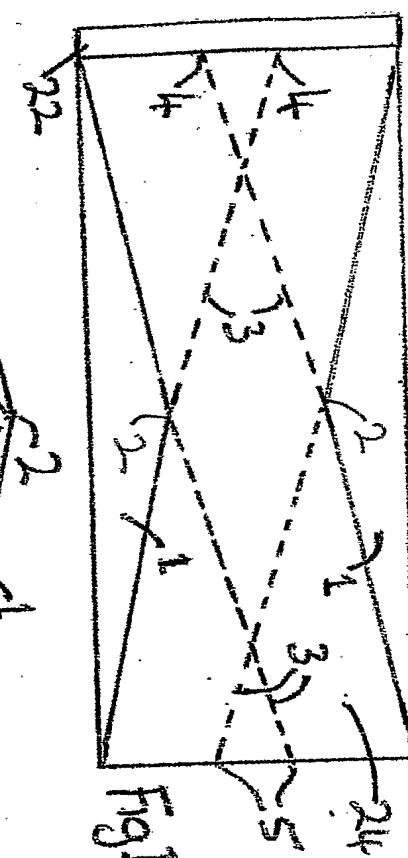


Fig 1

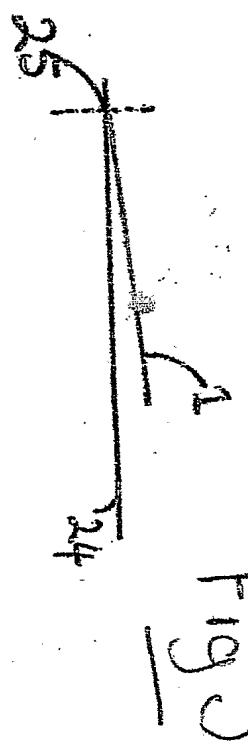


Fig 5

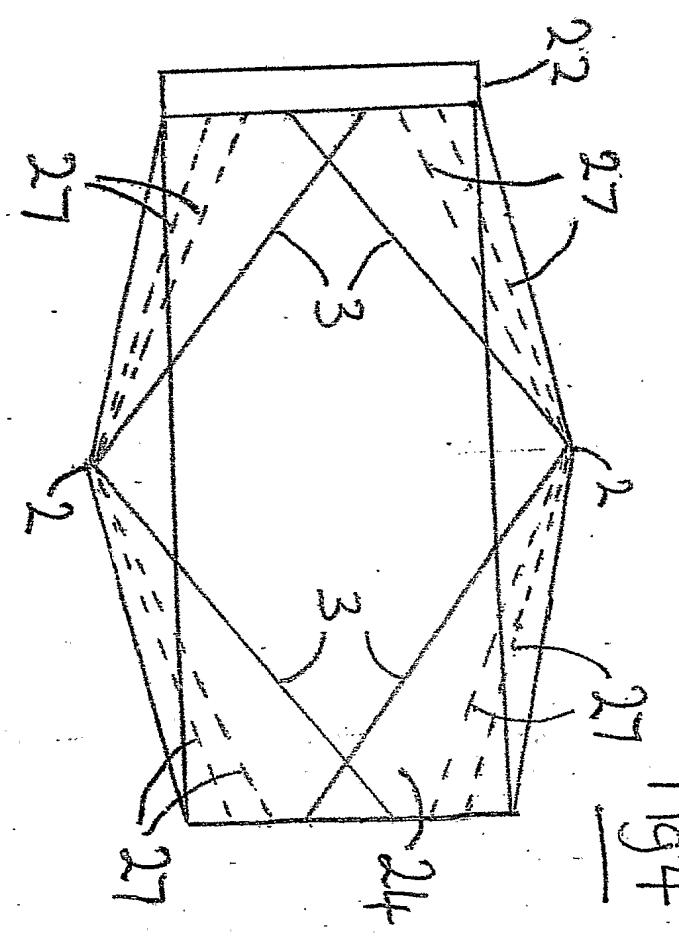


Fig 4

2/2

